

REMARKS

Claims 1, 2 and 5-12 remain pending in the present application. Claims 3 and 4 have been canceled. Claims 1, 2 and 5 have been amended. Claims 11 and 12 are new. Basis for the amendments and new claims can be found throughout the specification, claims and drawings originally filed.

REJECTION UNDER 35 U.S.C. § 102

Claims 1, 3, 4 and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese Patent 11-115466. Applicants respectfully traverse this rejection.

According to amended claim 1, each of the fluid tubes and the refrigerant tubes has a flat shape, the cross-sectional shape of which is long and thin in the flow direction of the air. The cross-section is perpendicular to a coolant flow direction. The fluid is heated by the waste heat and flows in the fluid tubes. The high pressure refrigerant flows in the refrigerant tubes. The fluid tubes and the refrigerant tubes compose the heater. The fluid tubes and the refrigerant tubes can exchange heat therebetween. Further, each of the fluid tubes and the refrigerant tubes is parallel to the flow direction of the air, respectively. Therefore, the heat exchange area between the fluid tubes and the refrigerant tubes becomes wider. Thus, the heat of the refrigerant can transmit to the fluid effectively. Further, by using the fluid tubes, the heat generated in the fluid and the heat transmitted from the refrigerant tubes is effectively radiated to the air.

In JP-H-11-115466, the fluid tubes and the refrigerant tubes are disposed in series in the flow direction of the air. In this case, the heat exchange area between the fluid tubes and the refrigerant tubes becomes smaller. Therefore, the refrigerant flowing

in the refrigerant tubes disposed on the upstream side of the air flow heats the air substantially. Then, the heated air and the fluid flowing in the fluid tubes exchange heat therebetween. At this time, the temperature of the heated air becomes warmer, so that the temperature difference between the heated air and the fluid flowing in the fluid tubes becomes smaller. As a result, the heat of the fluid does not transmit to the air effectively.

Thus, the present invention is different from the cited reference. Further, the heating performance of the heater claimed in amended Claim 1 is superior to that of the cited reference.

Thus, Applicants believe Claim 1, as amended, patentably distinguishes over the art of record. Likewise, Claim 6, which depends from Claim 1, is also believed to patentably distinguish over the art of record. Claims 3 and 4 have been canceled. Reconsideration of the rejection is respectfully requested.

ALLOWABLE SUBJECT MATTER

Claims 2 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 2 and 5 depended from Claim 1. Both Claims 2 and 5 have been amended to independent form to include the limitations of Claim 1 and are thus believed to be allowable.

Claims 7-10 have been allowed over the prior art.

NEW CLAIMS


New Claims 11 and 12 are dependent claims which Applicants believe properly further limit Claim 1.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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